



Implications of orchestration for polycentric governance systems

The case of multifunctional water use in the canton of Zurich, Switzerland

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Impacts of climate change on the water resources in Switzerland

Annual water resources will not substantially change

- > Seasonal:
 - decline in summer
 - increase in winter

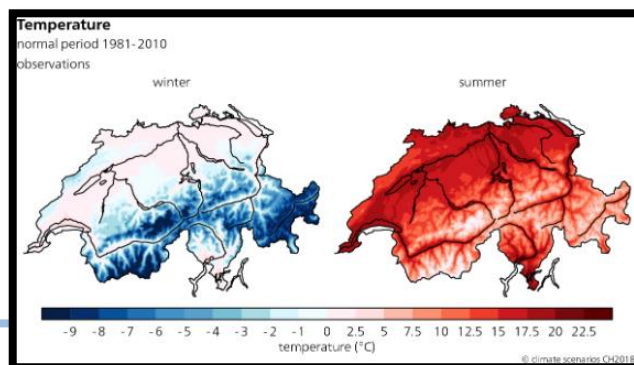
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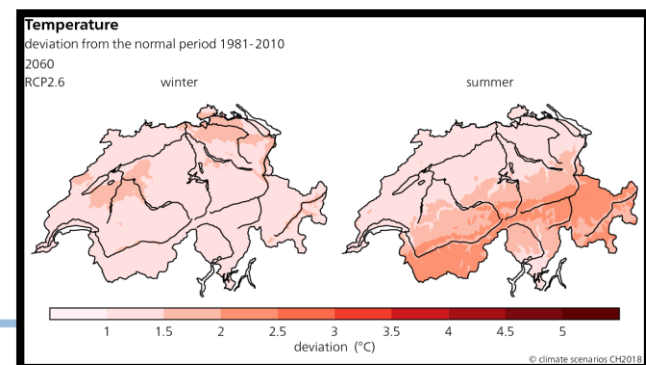
- > Seasonal:
 - decline in summer
 - increase in winter
- > Reasons:
 - increasing temperatures

Climate scenarios CH2018

1981-2010



2060



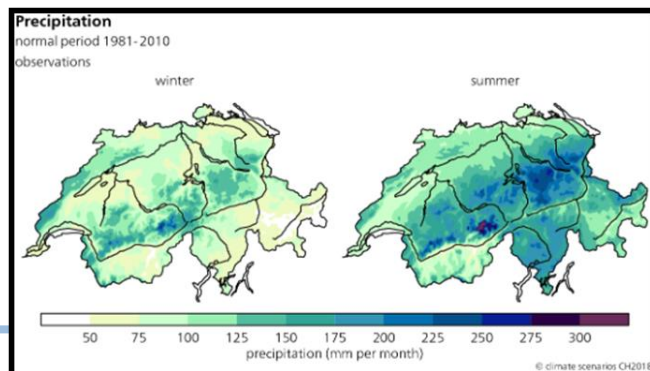
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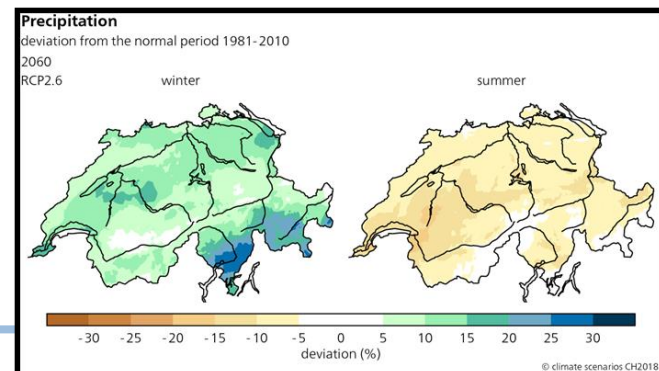
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- > Reasons:
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- > In spring and summer time:
 - increase demand of water for the nature
 - increase demand of water for irrigation

→ Need for new dynamics in environmental and agricultural governance of water resources

Governance of complex natural resource systems

> Polycentric governance

- **Polycentric governance systems** have a higher capacity to deal with complex natural resource systems (Ostrom 2010; Pahl-Wostl, Knieper 2014; Carlisle, Gruby 2017).
- Polycentric governance systems operate more effectively with **modest levels of coordination or ordering** (Zürn, 2010; Betsill et al., 2015; Mayntz, 2015; Dorsch and Flachslan, 2017; Abbott, 2018).

> Problem

- Accumulating evidence shows: polycentric coordination is **vulnerable to internal** (e.g. number and constellation of participants) **and external factors** (e.g. changing environmental circumstances, **steering attempts from other actors**) (Galaz et al., 2012).
- Orchestration influence (benefits) of polycentric governance systems

Research questions

1)

What factors transition a weak polycentric governance order into a stronger polycentric governance order or vice versa?

2)

How do processes of orchestration shape the degree of polycentric order and affect the outcome for complex natural resource systems?

Method

-
- > Qualitative case study approach
 - > Selection of one case of multifunctional water use in the canton of Zurich, Switzerland
 - > Semi-structured interviews; transect walks; document analysis of legal materials; concessions; general literature on the case; national, cantonal and regional strategies
 - > Qualitative content analysis
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Frameworks

- > **Polycentric governance** (McGinnis, 1999; Ostrom, 2010; Pahl-Wostl et al., 2014; Carlisle et al., 2017; Jordan et al., 2018)
 - > **Orchestration** (Hale and Roger 2014, Abbott et al. 2015, Bäckstrand and Kuyper 2017, Abbott 2018)
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Polycentric governance

- > Multiple, overlapping decision-making centers with some degree of autonomy
- > Choosing to act in ways that take account of others through processes of cooperation, competition, conflict and conflict resolution

(Carlisle et al., 2017)

Polycentric governance

- > Polycentricity is a **matter of degree**

Degree of polycentricity	Weak polycentric coordination	Polycentric coordination	Polycentric order	Strong polycentric order
Key characteristics	Information sharing	Informal arrangements	Joint investments	Joint projects, evolution of rules

- > Defined by features such as communication dynamics, degree of formalization, and network structural patterns.
- > **External and internal factors affect** the ability of actors to maintain a certain degree of polycentric order.

Orchestration

Orchestration is an indirect mode of governance in which

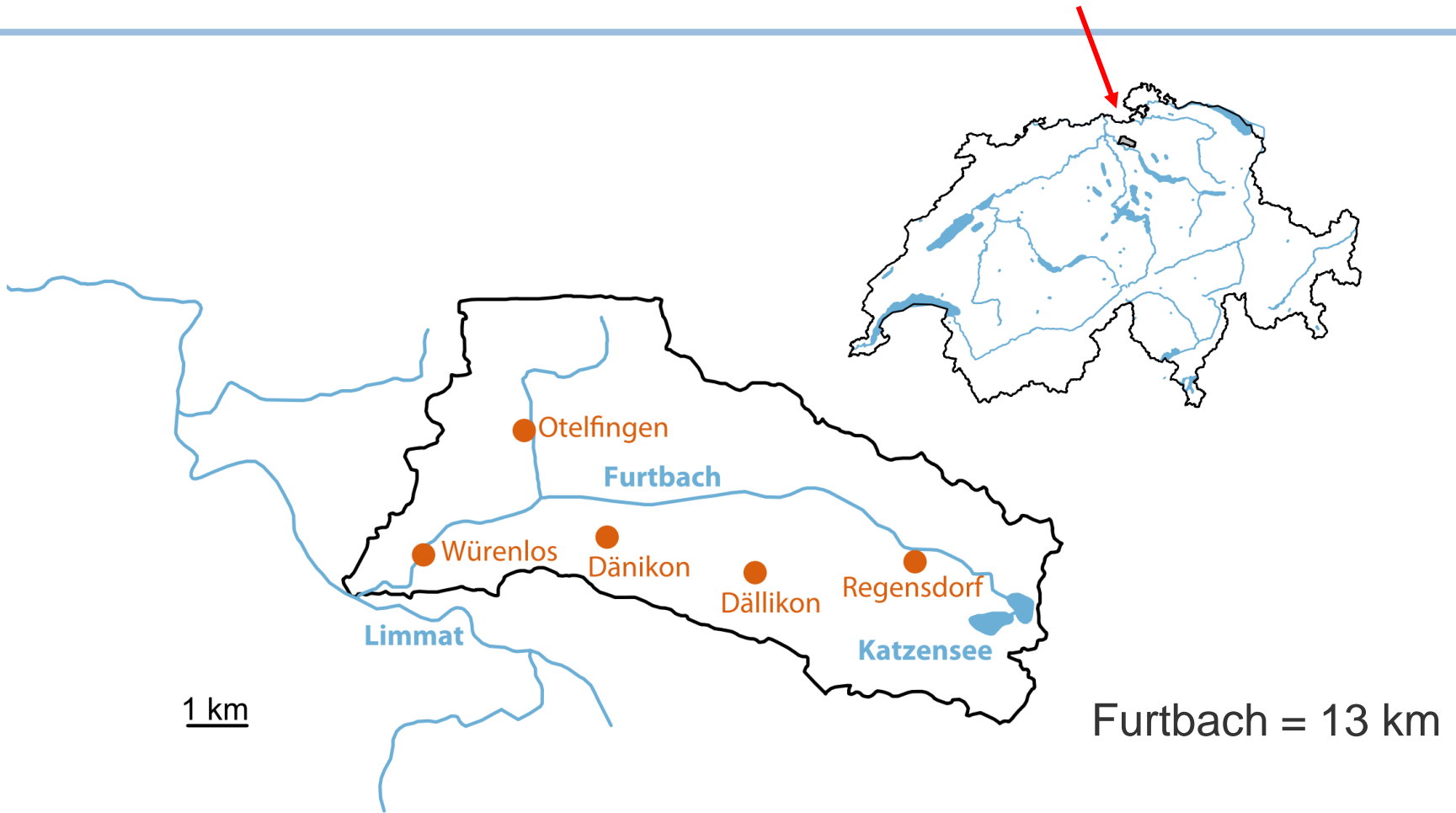
- > a lead organization (the **orchestrator**) enlists
 - > intermediary actors and organizations (the **intermediaries**) to influence
 - > the behavior of other actors (the **targets**)
- in accordance with the orchestrator's goals .

(Abbott und Hale 2014)



Case study

Furttal (Canton of Zurich, CH)

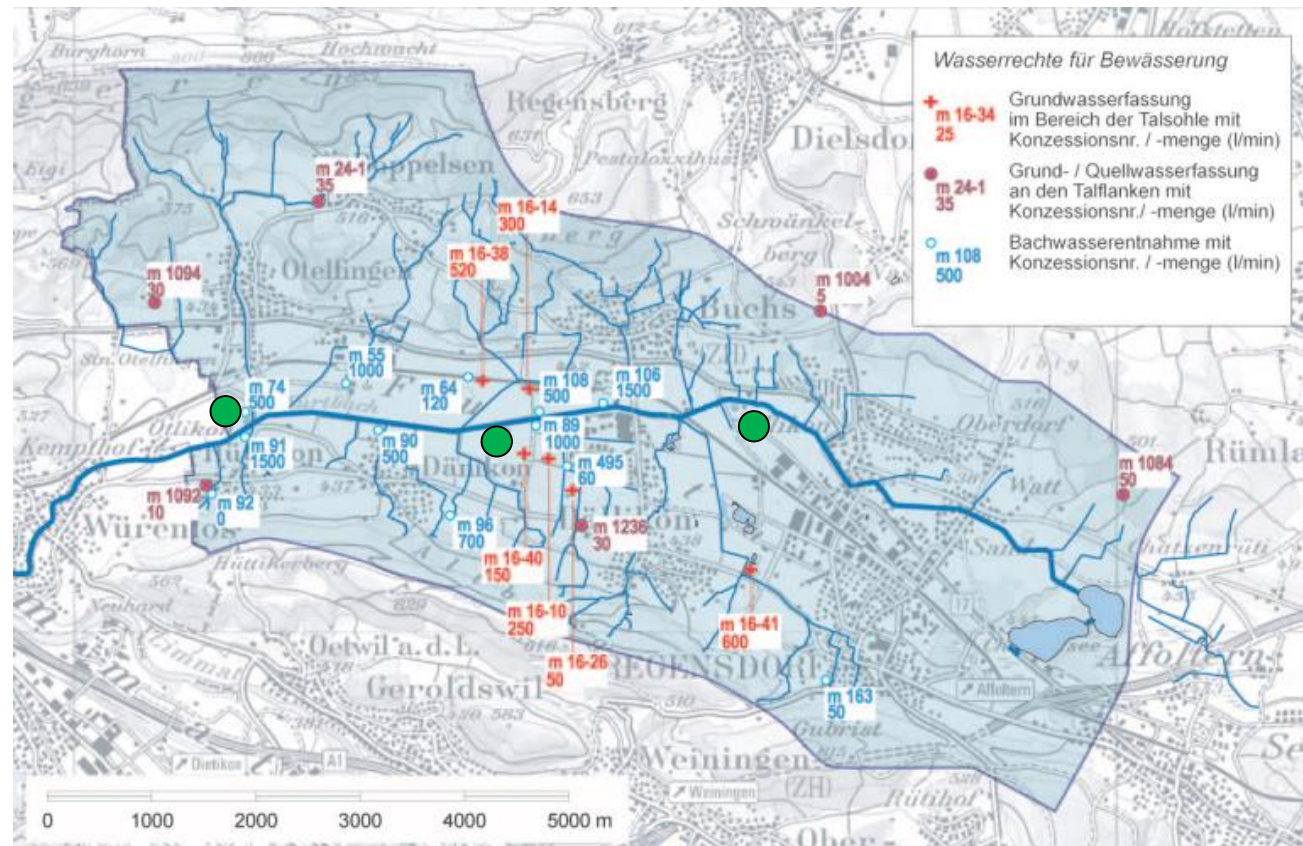


Catchment of the Furtbach with water rights for irrigation

Each farmer/golf-parc: own concession

3 types of concessions:

- > Furtbach
- > Side streams from the Furtbach
- > Ground and spring water



Environmental and agricultural problem (changing external factor)

- > In dry seasons:
 - More irrigation (nitrate leaching in soils, phosphorus input from soil erosion, pesticides,...)
 - Flow of the Furtbach \approx wastewater from the treatment plants
- Water quality (substances and temperature)
- Water quantity

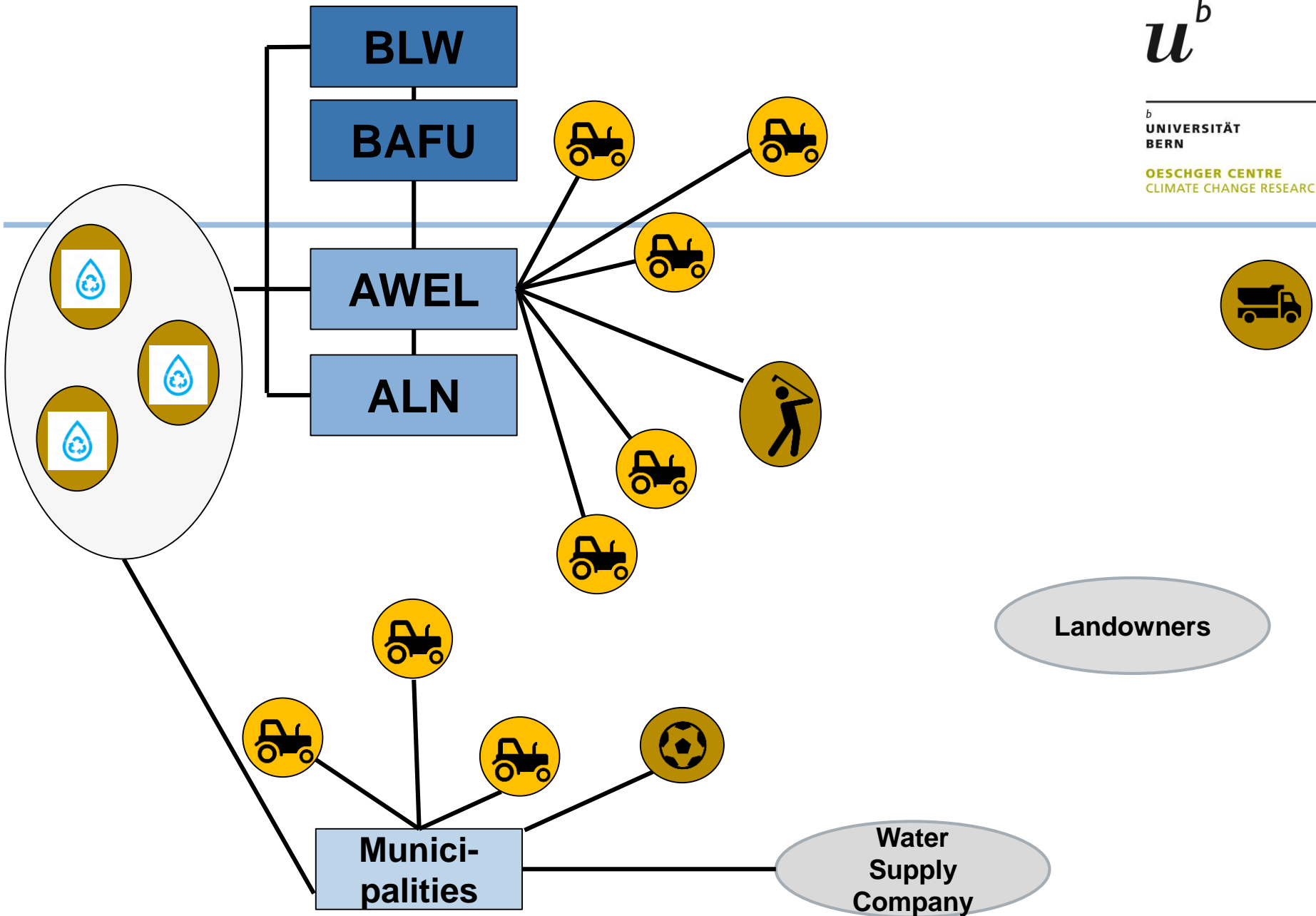
Consequences

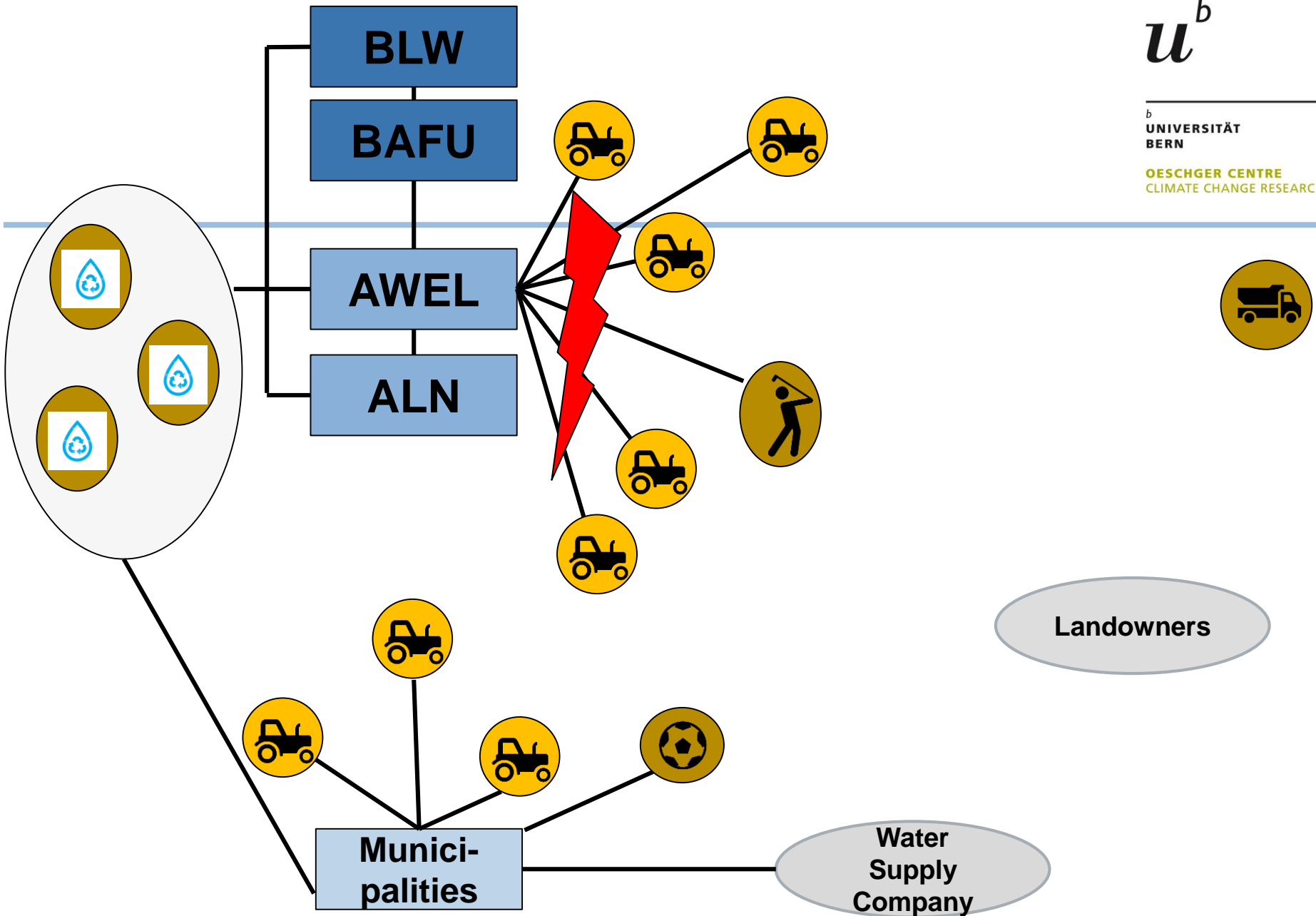
- Expiry of concessions → no renewals of the concession
- New sources of water for irrigation
- Only 1 concession for all
- More efficient irrigation techniques

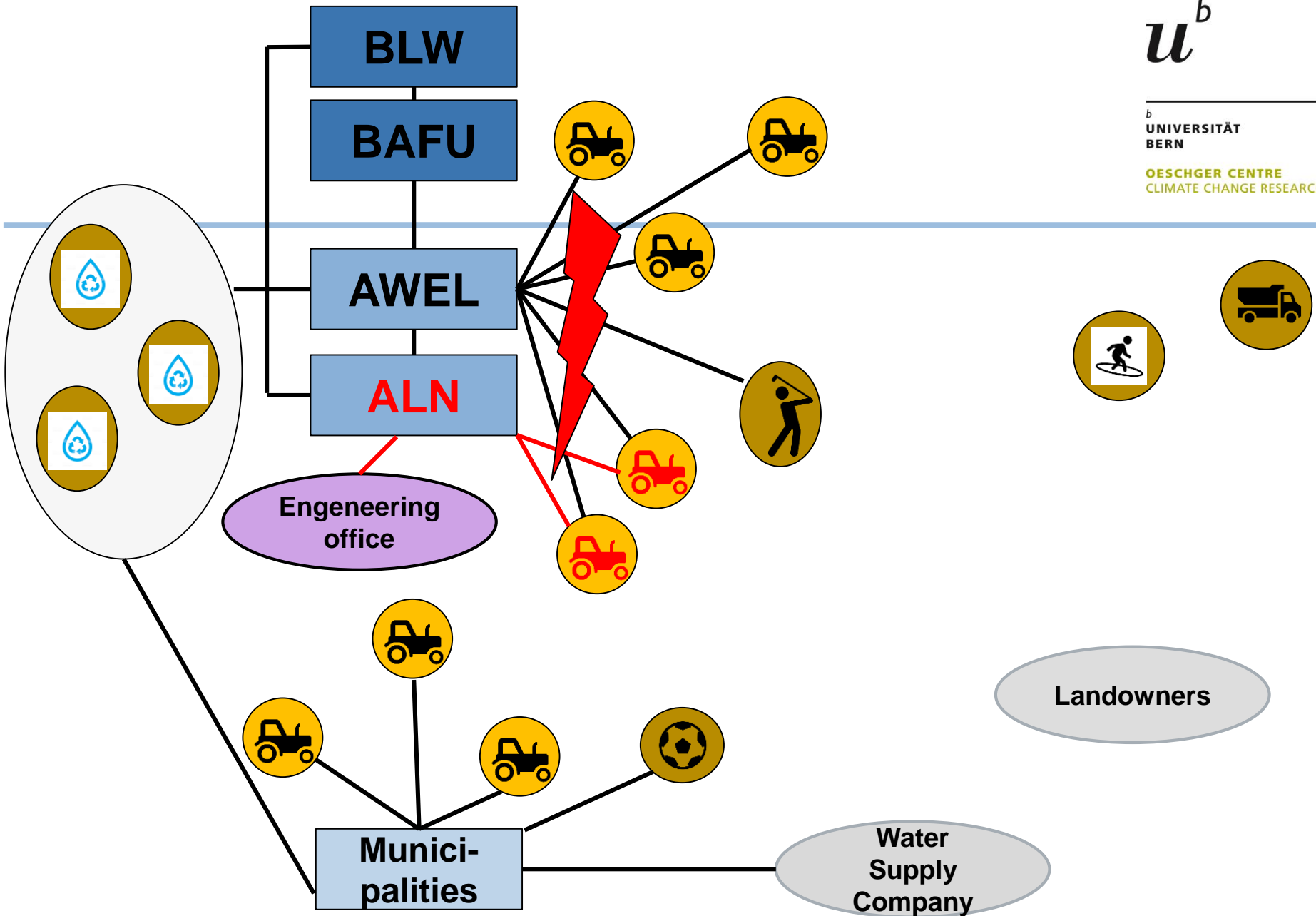
Results

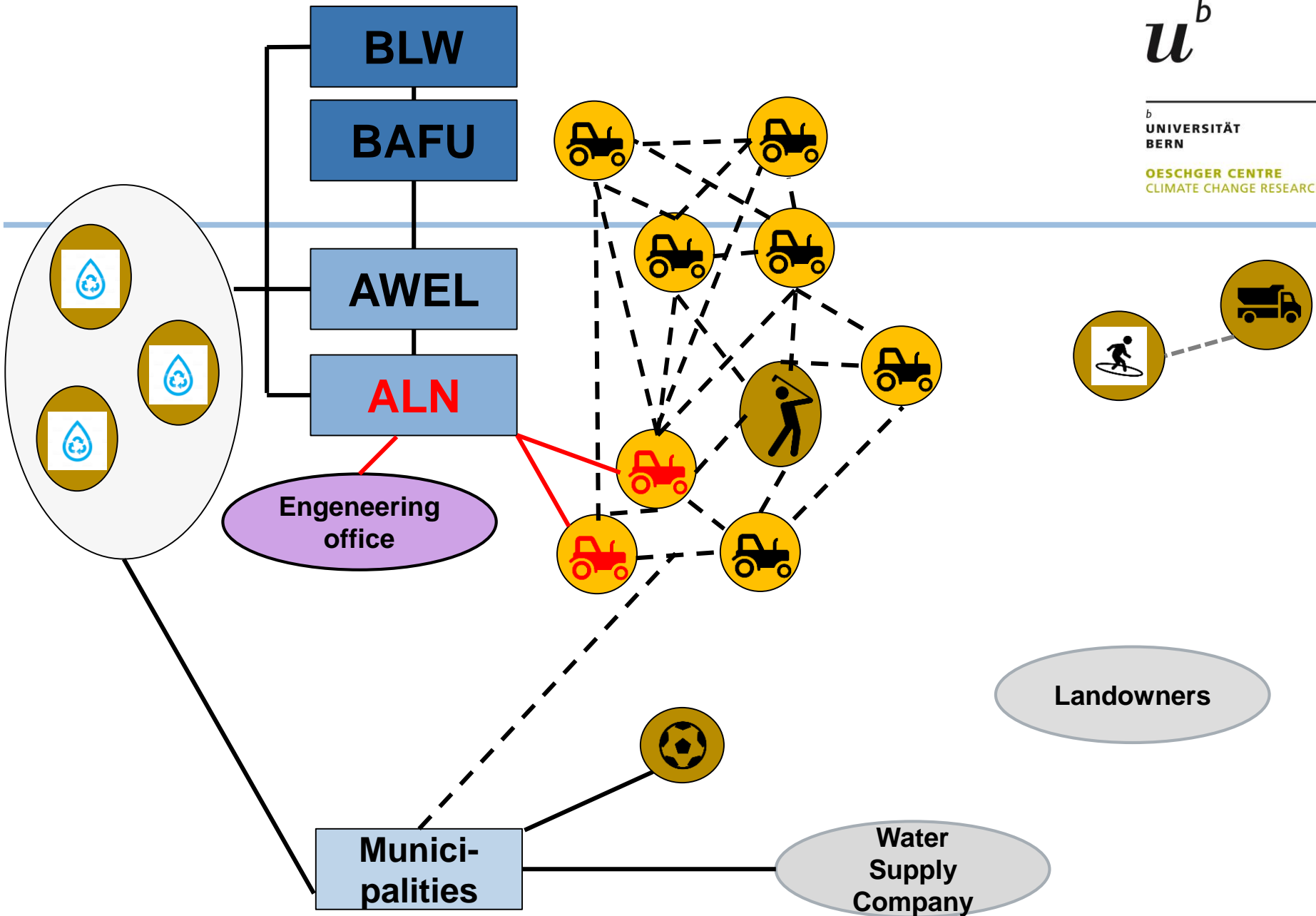
1)

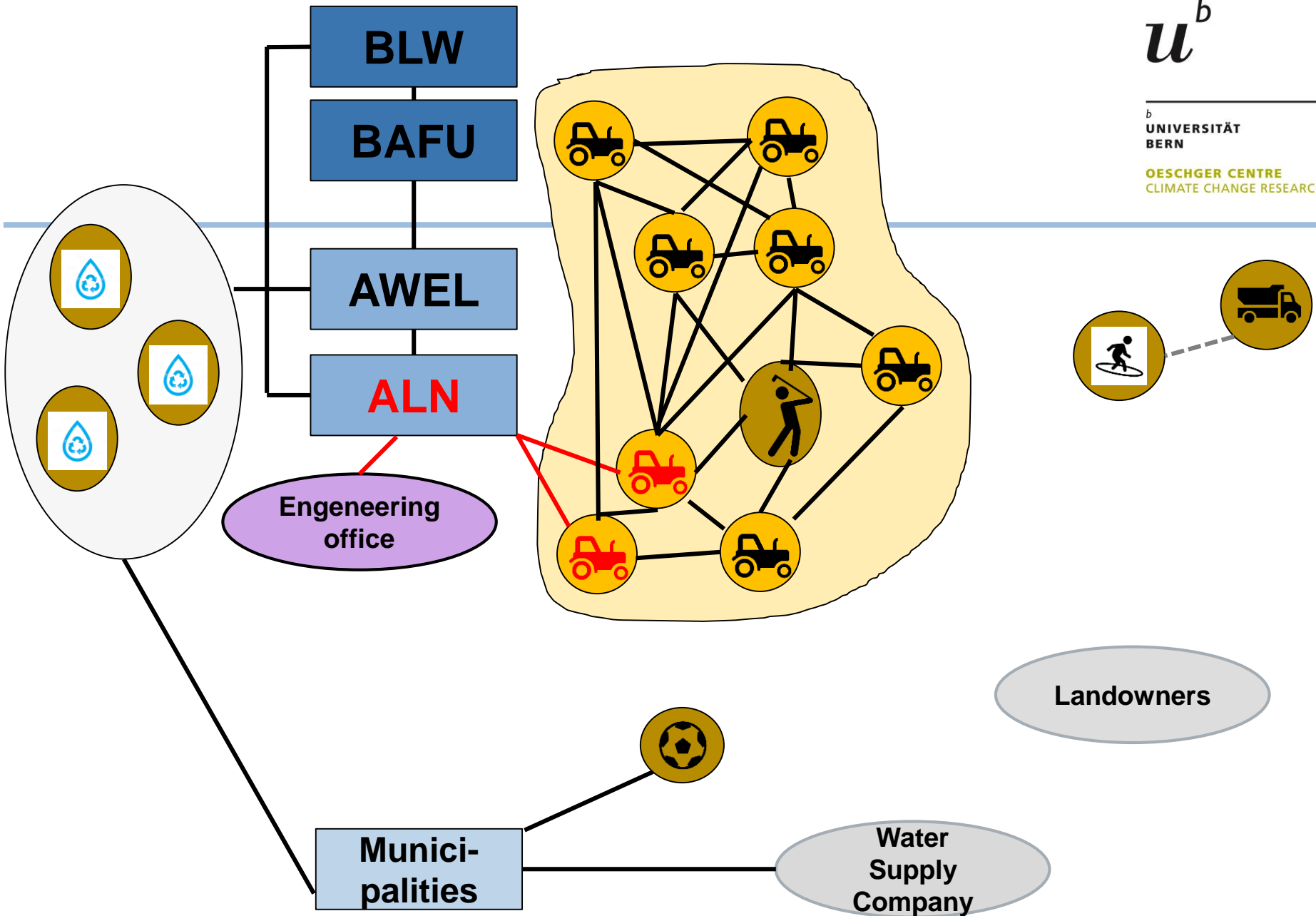
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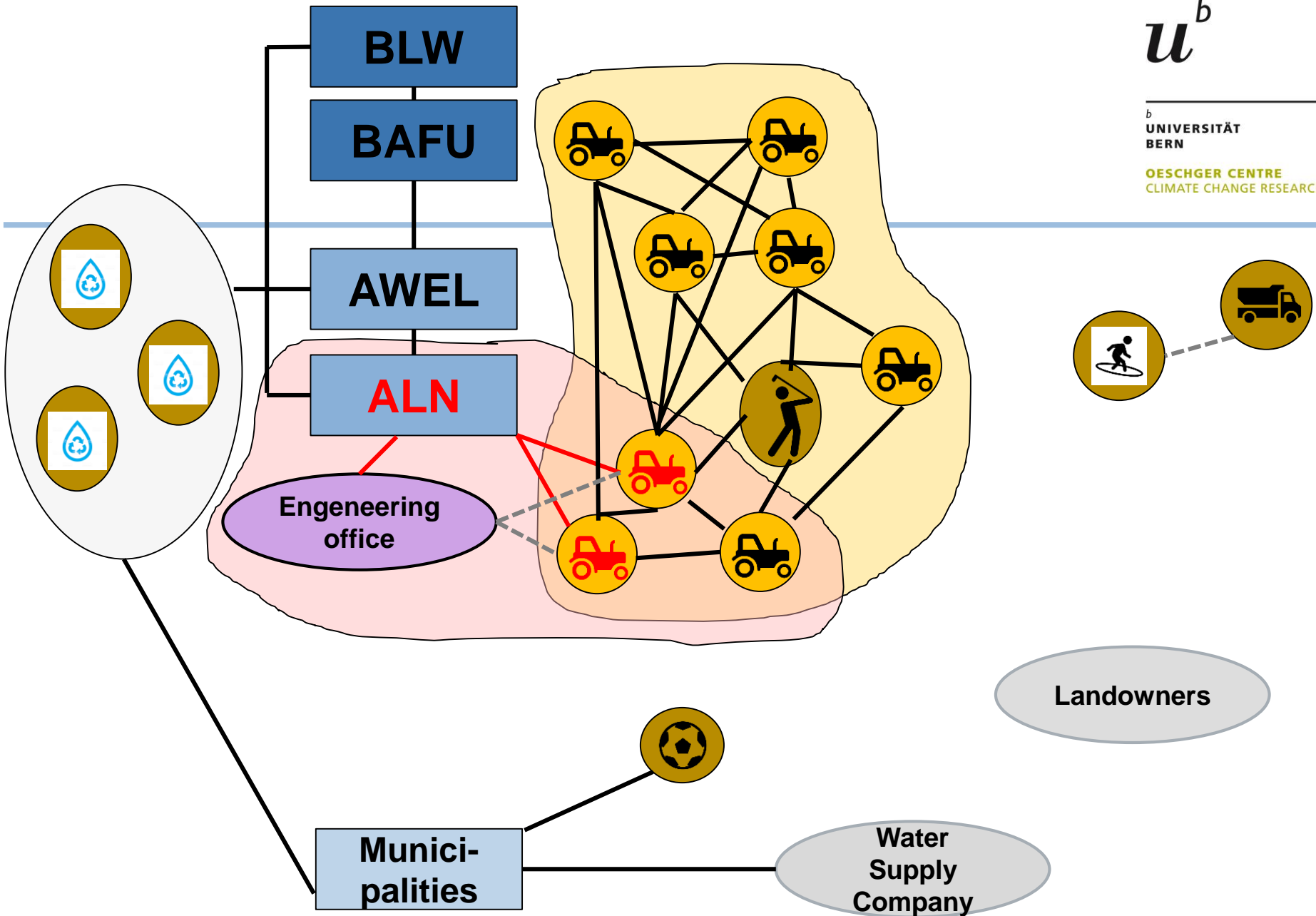


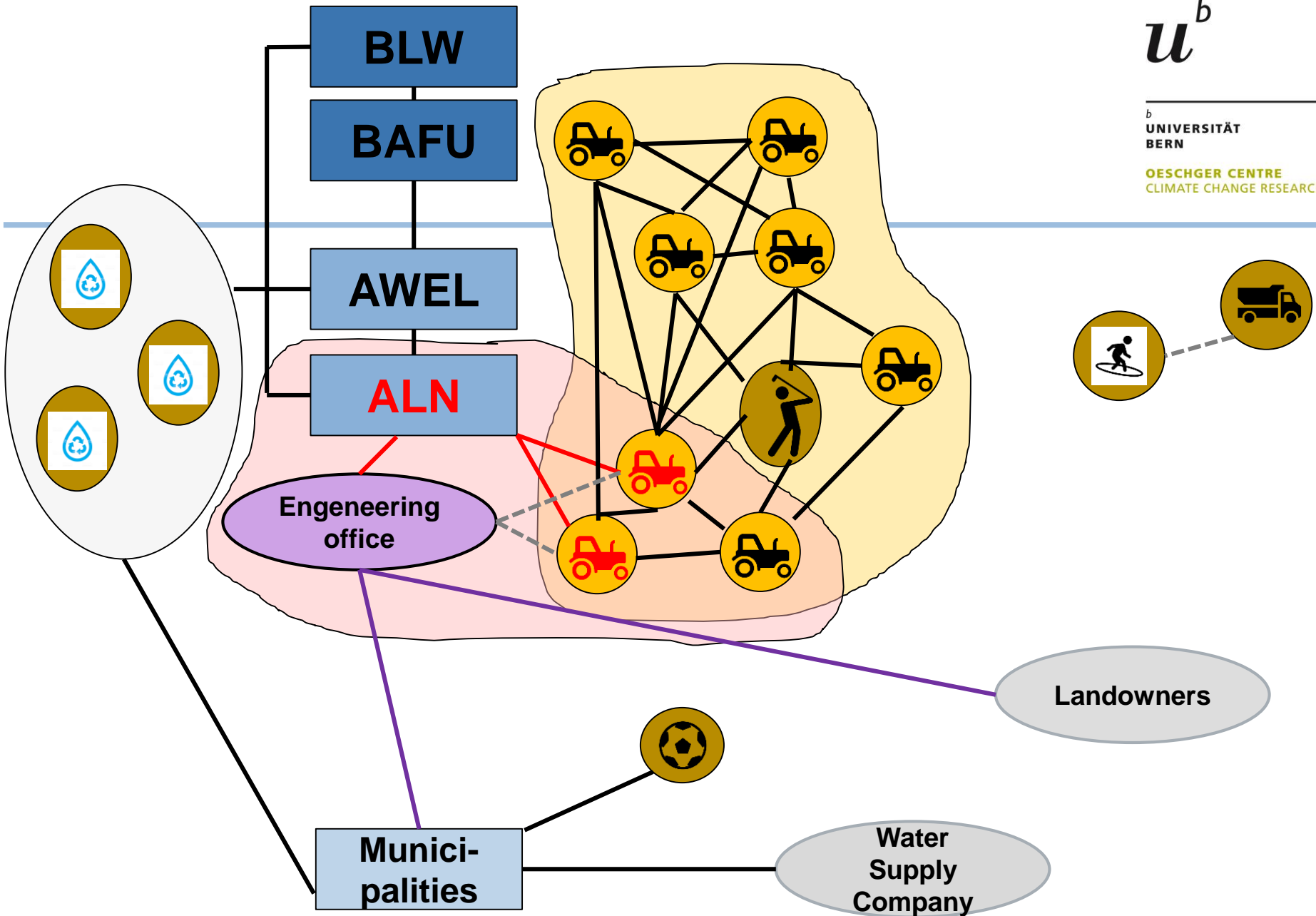




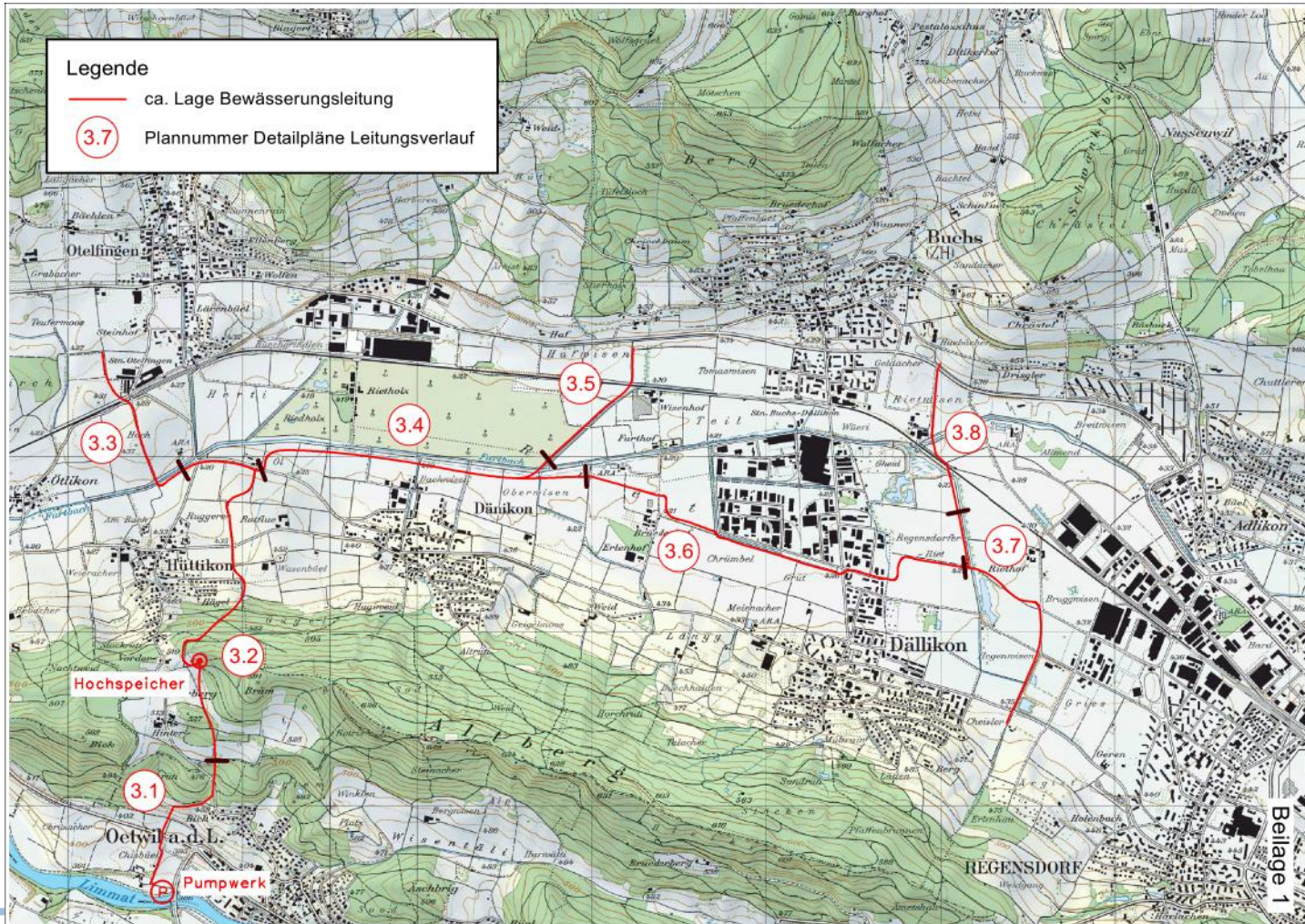


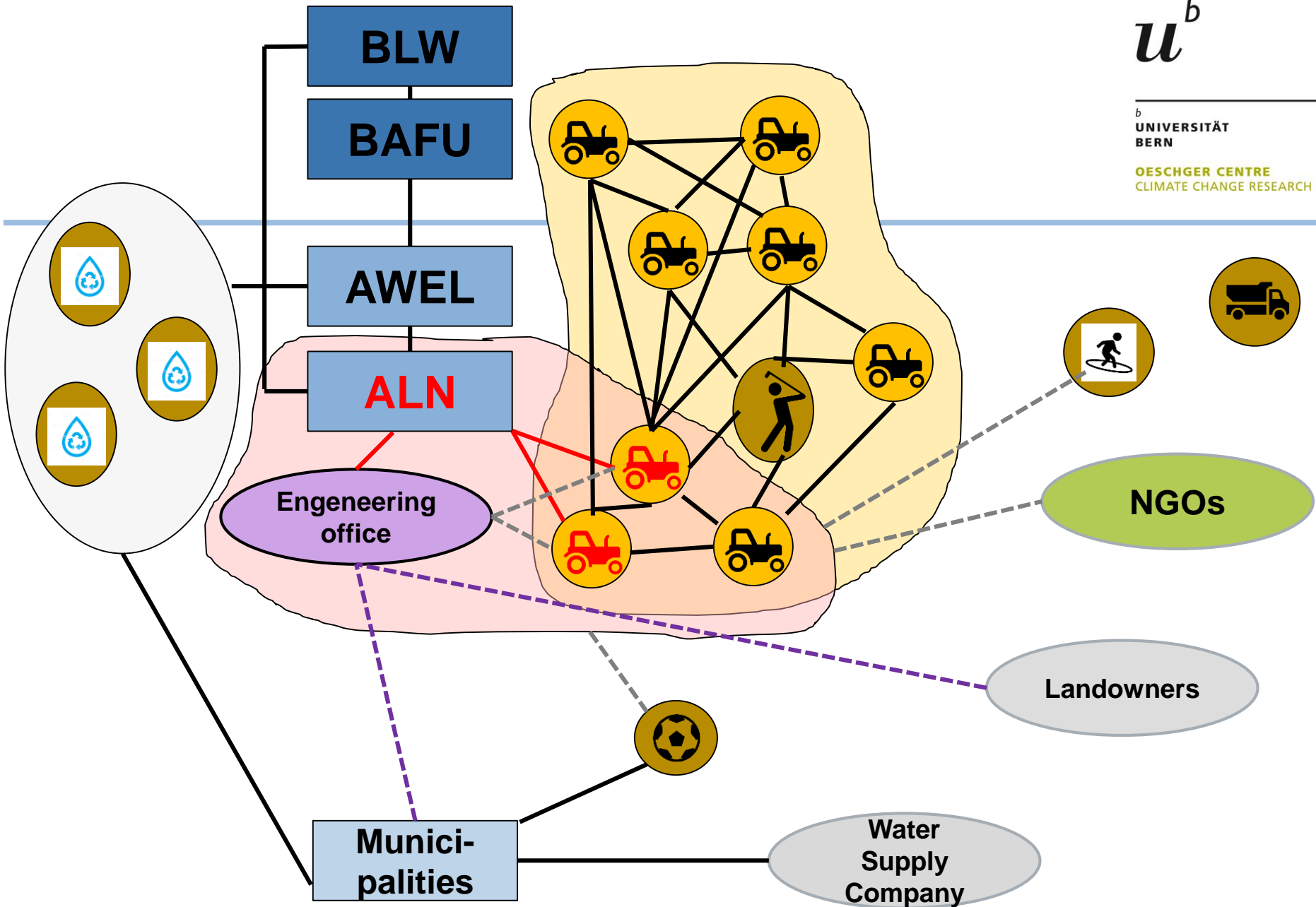


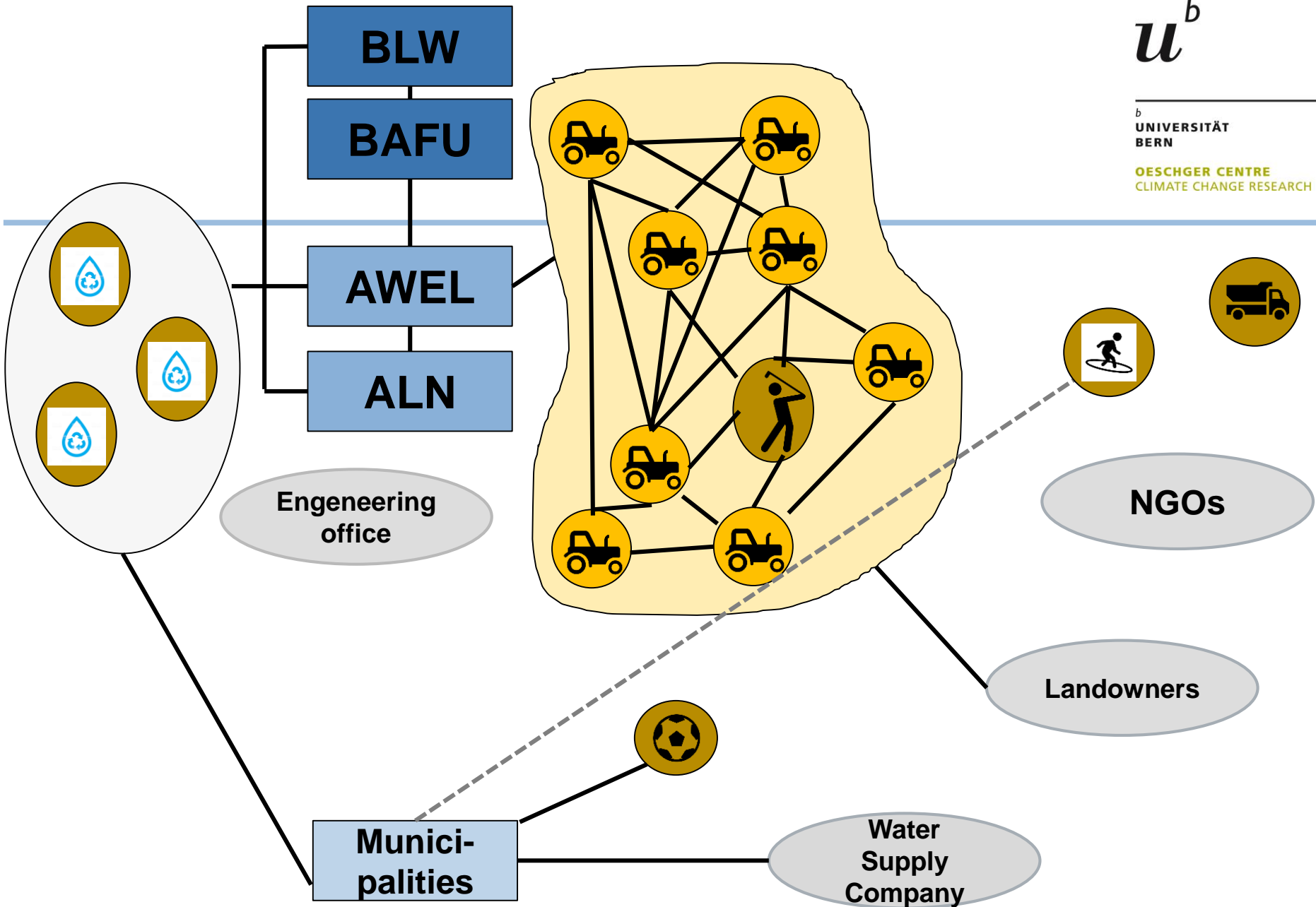




Technical solution







External factors

- > **Environmental problems** (water quality and quantity)

- > **Public policies and property rights**
 - Public policies and property rights
 - Different **sectoral instruments** to support projects or to grant subsidies:
 - „Program for sustainable use of natural resources “
(Federal Office for Agriculture)
 - “Pilot Program: Adaption to climate change”
(Federal Office for the Environment)
 - “New Regional Policy”
(State Secretariat for Economic Affairs)
 - External flow of funding

- > **Orchestration**

Results

2)

How do processes of orchestration shape the degree of polycentric order and affect the outcome for complex natural resource systems?

Processes of orchestration

Initiating

- > The canton (O.) enlist like-minded farmers (I.) through persuasion and the offer of support

Supporting

- > The canton (O.) strengthens their governance impact by providing support:
 - deploy material support (financial contributions)
 - information and guidance (administrative assistance)
 - activate specific policy instruments (to defend their use interests, external flow of funding)
 - mobilize pressure and assistance from third parties (AWEL, BLW)

Shaping

- > The canton (O.) shapes and steers the goals, structures and activities of the farmers (I.) to keep them in line with its own goals and priorities
- > To ensure that publicly adopted mandates and norms are observed

How do processes of orchestration shape the degree of polycentric order?

- > **Stronger polycentric order around the “target”**
 - orchestrators encourage and facilitate the formation of new units
 - Some relations become stronger for a smaller set of actors (executive board, cooperative)
 - Formalization of partnerships (cooperative)
 - Institutionalized mechanisms for problem solving and conflict resolution (cooperative)

How do processes of orchestration shape the degree of polycentric order?

- > **Weaker or inhibited polycentric order for the rest of the system**
 - Inhibit self-organization of the farmers
 - Inhibit cooperation and collaboration of the farmers with other actors like the operator of the surf parc, other irrigation-actors (less mutual adjustment)
 - Pursue specific governance goals (limits experimentation and learning)

How do processes of orchestration affect the outcome for complex natural resource systems?

- > The underlying environmental and agricultural problems have been solved
 - > Other use interests were excluded
 - > A sustainable solution for the whole region in consideration of all use interests and of climate change has not been discussed
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- > High adaptive capacity?
 - > Good institutional fit?

Conclusion

- > Polycentric governance orders are **vulnerable to external factors**
- > They can transition degrees of polycentric governance orders:
 - Environmental problems
 - Public policies (flow of finance) and property rights (concessions)
 - Processes of orchestration
- > **Processes of orchestration:**
 - O. steer and coordinate through intermediaries
 - O. strengthen their impact by providing support
- > Processes of orchestration **shape the degree of polycentric order:**
 - Stronger polycentric order around the “target”
 - Weaker or inhibited polycentric order for the rest of the system

Conclusion

-
- > Processes of orchestration affect the **outcome for complex natural resource systems**
 - No approach for a sustainable solution for the whole region in consideration of all use interests and of climate change

Analysis of polycentric governance processes should also look for strategic actions that

- > catalyse and incentivise organisational formation
 - > promote ordering and coordination
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Thanks

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